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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,822	06/26/2003	Sang-Hyun Lee	3364P108	5522
8791 7590 08/13/2007 BLAKELY SOKOLOFF TAYLOR & ZAFMAN 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040			EXAMINER BURD, KEVIN MICHAEL	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 08/13/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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# Office Action Summary

Application No.

10/606,822

Applicant(s)

LEE ET AL.

Examiner

Kevin M. Burd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-19 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-19 and 22-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. This office action, in response to the request for continued examination (RCE) and the amendment filed 7/31/2007, is a non-final office action.

***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/31/2007 has been entered.

***Response to Arguments***

3. The previous rejection under 35 USC 112, second paragraph is withdrawn.
4. Applicant's arguments with respect to claims 1, 2, 5-19 and 22-24 have been considered but are moot in view of the new grounds of rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1, 2, 5, 6, 10-16, 19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al (US 2003/0072320) in view of Mostafa et al (US 7,110,732).

Regarding claims 1, 16 and 19, Seo discloses a software defined radio system (figure 2). The receiver, shown in figure 2, is a direct conversion receiver. The receiver converts the received signal to a base band signal using mixers 227 and 229 and a frequency synthesizer 231 (paragraph 0024). The RF signal received is applied to the mode switch 213. The signal is a mixture of multiple standard specification signals (paragraph 0025). A mode selection signal is used in selecting a specific standard specification signal from the multiple standard specification signals received (paragraph 0025). The signal is input to a receive filter 245 and 247. The digital filter digital filters the converted digital signal using a decimation rate and a filter bandwidth corresponding to the specific standard specification (abstract and paragraph 0044). The bandwidths of the filters will increase or decrease according to the selected standard. When a larger bandwidth is necessary, additional resources are required to pass more bandwidth. Different filter coefficients are used to change the filter bandwidth (paragraph 0044). The DSP 253 controls the receiver (figure 2). Seo discloses a direct conversion receiver. Seo does not disclose converting the received RF signal to an intermediate frequency signal and then converting the IF signal to base band. Mostafa discloses an RF receiver shown in figure 8. The receiver discloses an RF signal is received, converted to IF (mixer 116) and converted to base band (mixers 132). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine

the IF conversion of Mostafa into the receiver of Seo. The RF to IF to base band converter is a substitution of the direct conversion and would eliminate the complexity found in the direct conversion. This would also reduce the cost of the receiver.

Regarding claim 2, Mostafa discloses the RF signal is converted to IF and then digitized in figure 8.

Regarding claims 5 and 6, Seo discloses the filter is an FIR filter that is reconfigurable according to the communication standard selected (paragraph 0044).

Regarding claims 10-15 and 22-24, Seo discloses adjusting the filter bandwidth according to the selected standard. By adjusting the bandwidth, the highest quality can be maintained for each standard by passing only the appropriate signal components though power consumption may be increased.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al (US 2003/0072320) in view of Mostafa et al (US 7,110,732) further in view of Murakami et al (US 6,678,317).

Regarding claim 7, the combination of Seo and Mostafa is disclosed above in paragraph 5. The combination does not disclose the structure of the receive filter. Murakami discloses the basic structure of a conventional discrete filter 6 for removing distortion caused by fading (column 3, lines 7-19 and figure 16). This filter will remove any out of band signals and noise. The filter comprises filter coefficient multipliers, registers summers and coefficient updating circuitry as shown in figure 16. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine

the conventional discrete filter of Murakami into the system of the combination of Seo and Mostafa. Using a simple, conventional filter will reduce the cost and complexity at the receiver.

Regarding claim 8, the digital filter digital filters the converted digital signal using a decimation rate and a filter bandwidth corresponding to the specific standard specification (abstract and paragraph 0044). The bandwidths of the filters will increase or decrease according to the selected standard. When a larger bandwidth is necessary, additional resources are required to pass more bandwidth. Different filter coefficients are used to change the filter bandwidth (paragraph 0044).

Regarding claim 9, as stated above in paragraph 4, hardware is reduced since the combination does not require using the largest filter at all times.

7. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al (US 2003/0072320) in view of Murakami et al (US 6,678,317).

Regarding claims 17 and 18, Seo discloses a software defined radio system (figure 2). The receiver, shown in figure 2, is a direct conversion receiver. The receiver converts the received signal to a base band signal using mixers 227 and 229 and a frequency synthesizer 231 (paragraph 0024). The RF signal received is applied to the mode switch 213. The signal is a mixture of multiple standard specification signals (paragraph 0025). A mode selection signal is used in selecting a specific standard specification signal from the multiple standard specification signals received (paragraph 0025). The signal is input to a receive filter 245 and 247. The digital filter digitally filters

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the converted digital signal using a decimation rate and a filter bandwidth corresponding to the specific standard specification (abstract and paragraph 0044). The bandwidths of the filters will increase or decrease according to the selected standard. When a larger bandwidth is necessary, additional resources are required to pass more bandwidth.

Different filter coefficients are used to change the filter bandwidth (paragraph 0044).

The DSP 253 controls the receiver (figure 2). Seo does not disclose the structure of the receive filter. Murakami discloses the basic structure of a conventional discrete filter 6 for removing distortion caused by fading (column 3, lines 7-19 and figure 16). This filter will remove any out of band signals and noise. The filter comprises filter coefficient multipliers, registers summers and coefficient updating circuitry as shown in figure 16. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the conventional discrete filter of Murakami into the system of the combination of Seo. Using a simple, conventional filter will reduce the cost and complexity at the receiver.

### ***Conclusion***

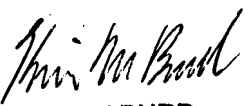
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin M. Burd  
8/4/2007

  
**KEVIN BURD**  
**PRIMARY EXAMINER**